EPA/OPP MICROBIOLOGY LABORATORY
ESC, Ft. Meade, MD

Standard Operating Procedure
for
Monitoring Water Temperature of Recirculating Chillers

SOP Number: QC-07-02

Date Revised: 08-22-02

Prepared By: _____Date: ___/___/___

Print Name:_____

Reviewed By: _____ Date: ___/___/___

Print Name:_____

Technical Staff

_____ Date: ___/___/___

Print Name:_____

QA Officer

_____ Date: ___/___/___

Print Name:_____

Laboratory Director

Date Issued: ___/___/___

Withdrawn By: _____ Date: ___/___/___

Controlled Copy No.: _____

TABLE OF CONTENTS

1.0 SCOPE AND APPLICATION:

1.1 This protocol describes the quality control requirements for monitoring the temperature and maintenance of the recirculating chillers.

2.0 DEFINITIONS:

2.1 ASTM = American Society for Testing and Materials

2.2 NIST = National Institute of Standards and Technology

3.0 HEALTH AND SAFETY: Not applicable

4.0 CAUTIONS: None

5.0 INTERFERENCES:

5.1 The thermometer must be suspended in the water without touching the sides or bottom of the recirculating chiller or vessel in which it is suspended.

6.0 PERSONNEL QUALIFICATIONS:

6.1 Personnel are required to be knowledgeable of the procedures in this SOP.

7.0 SPECIAL APPARATUS AND MATERIALS:

7.1 Neslab RTE 220 Series Refrigerated Bath/Recirculating Chiller # 1, Serial Number 92JML39480-4.

7.2 Neslab RTE 221 Series Refrigerated Bath/Recirculating Chiller # 2, Serial Number 199019023.

7.3 Neslab RTE 221 Series Refrigerated Bath/Recirculating Chiller # 3, Serial Number 199019021.

7.4 Neslab RTE 221 Series Refrigerated Bath/Recirculating Chiller # 4, Serial Number 100188013.

7.5 Neslab RTE 221 Series Refrigerated Bath/Recirculating Chiller # 5, Serial Number 100188015.

7.6 Neslab RTE 221 Series Refrigerated Bath/Recirculating Chiller #6, Serial Number 100110060.

7.7 Neslab RTE 221 Series Refrigerated Bath/Recirculating Chiller # 7, Serial Number 100143018.

7.8 ASTM 5C Thermometers: Measure from −38°C to 50°C in one degree increments.

8.0 INSTRUMENT OR METHOD CALIBRATION: Not applicable

9.0 SAMPLE HANDLING AND STORAGE: Not applicable

10.0 PROCEDURE AND ANALYSIS:

10.1 Let the thermometer equilibrate in the reservoir for at least 15 minutes.

10.2 The temperature from the digital readout of the recirculating chiller is recorded just prior to testing. The temperature of the reservoir, which is located within the biosafety cabinet, is also recorded using an ASTM 5C thermometer. A second reading of the reservoir and recirculating chiller temperature will be taken just after testing to demonstrate that the temperature was stable during testing.

11.0 DATA ANALYSIS/CALCULATIONS: None

12.0 DATA MANAGEMENT/RECORDS MANAGEMENT:

12.1 Data will be recorded promptly, legibly and in indelible ink on the appropriate Test Information Sheets. Completed forms are archived in notebooks kept in locked file cabinets in the file room D217. Only authorized personnel have access to the locked files. Archived data is subject to OPP's official retention schedule contained in SOP ADM-03, Records and Archives.

13.0 QUALITY CONTROL:

13.1 The OPP Microbiology Laboratory conforms to 40 CFR Part 160, Good Laboratory Practices. Appropriate quality control measures are integrated into each SOP.

13.2 The ASTM thermometers are calibrated annually against a NIST traceable thermometer (see ref. 15.8).

14.0 NONCONFORMANCE AND CORRECTIVE ACTION:

14.1 Temperatures recorded from the recirculating chiller unit (digital) and the thermometer(corrected) in the reservoir must be within ±1°C of each other. If the difference is greater than ±1°C, then the circulation of the water from the unit to the reservoir will be checked for proper flow. The unit will be allowed to equilibrate an additional 15 minutes and the temperatures will be checked again. If the difference in readings remain greater than ±1°C, then the chiller will considered faulty and another recirculating chiller unit will be used. The faulty unit will be serviced.

14.2 Any deviation from the standard procedures will be documented in the record book. The reasons for any difficulties achieving and maintaining the target temperature will be determined and the appropriate corrective action will be taken by the laboratory staff. If the problem cannot be determined or corrected, a service technician will be called in to evaluate the situation and to initiate the service necessary.

15.0 REFERENCES:

15.1 Instruction and Operation Manuals for Neslab RTE Series Recirculating chillers.

16.0 FORMS AND DATA SHEETS: None